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Presented by J. R. Chadwick

ADDRESS

BEFORE THE

AMERICAN MEDICAL ASSOCIATION,

AT THE

ANNIVERSARY MEETING IN CINCINNATI,

MAY 8, 1850.

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BY JOHN C. WARREN, M.D.

PRESIDENT OF THE ASSOCIATION.



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INTRODUCTION.

THE whole of this Address was not delivered at the meeting of the Association. Circumstances of the moment made it necessary to omit a considerable part of it, and add others not originally intended. Being delivered *memoriter*, there must not be expected a precise coincidence in language. Whether its publication will add any thing to the stock of medical knowledge is very doubtful; but it was thought expedient to take this occasion to record the opinions which experience had afforded on some of the subjects now or recently discussed by the medical profession, and also to present a respectful notice of various distinguished individuals known to the author as contributors to the advancement of surgical science during the last half-century.



A D D R E S S .

It is a subject of congratulation to find ourselves in this great city of the West. Having, from an early period of life, contemplated with interest the origin and growth of this part of our country ; recollecting, as we do, the first passage of our Eastern citizens over the mountains and rivers, and recalling to mind the early disasters which carried off some of the most interesting and valuable of them, — it is delightful to us to visit these rich, peaceful, and flourishing regions. From the shores of the Atlantic, we come to that city which forms the key to the fertile prairies and magnificent rivers of the great West. Every thing we see shows the rapid advance which is making, and which is hereafter to be made, in the arts and sciences, and in those things which constitute the happiness of life.

We are brought here by the desire and hope of cultivating the interests of a noble and most useful

profession. Scattered over a vast country, our efforts have, till of late, been divided, and of course feeble. But now that the arms of our Association, sweeping over the whole Union, bring together into one great assembly distant members of this profession, we may expect, by our continued, harmonious, and well-directed labors, to accomplish changes and improvements beneficial to ourselves and to our country. And I cannot omit this opportunity of expressing my hearty thanks and congratulations to those judicious persons who first proposed, and afterwards labored in forming, this body.

Gentlemen, among our earliest duties will be a new organization. The custom has been happily established by my predecessors, that the first office of our Association should be subjected to an annual change. This custom I heartily approve, not only as harmonizing with the character of our institutions generally, but as affording the means of interesting different sections in the affairs of the Association, by the selection of experienced individuals from each in its turn. I feel a great pleasure in looking back to the distinguished persons of whom I have the honor to be successor. I see in them genius, learning, experience, habits of practical usefulness, constituting together characters creditable to our country, and

ornamental to the human race ; and, in this contemplation, I feel how much beyond any merit of mine is the honor which the Association has conferred on me. Inadequate, however, as any of my labors are to so important a station, I trust there has been no want of disposition to perform those labors thus far, and that my future efforts will not be wanting to show how much I value the opinions and how highly I esteem the interests of this Association.

But where is he* whom I hoped to have met here as my successor? Alas! we look for him in vain. His place is vacant. Situated in the region which seemed to have the best claim to present a candidate for the high honors of the Association; adorned by qualities which are most excellent in a physician, a man of science, and a gentleman; and well furnished by experience with the information necessary to perform the duty of presiding officer, — we cannot but consider his loss as a severe affliction. He fell, however, in the performance of his duty, and accomplished the last period of his professional career, in a manner which we could all wish to imitate.

With great satisfaction I hail the presence among us of one long distinguished in the West, and in truth throughout the nation, for his laborious and

* Dr. JOHN P. HARRISON, who died of cholera in 1849.

successful cultivation of medical learning. Still vigorous in mental and corporeal power, he comes to enjoy the intellectual development of those who have experienced the advantage of his talents and assiduous instructions.

Again I look around for the patriarch of medical literature in this great State, who has so much enriched the country by his productions as an historian, geologist, and philanthropist. Long may he continue to instruct us in the various departments of science connected with our profession! But, should he do nothing more than he has already done, there are few of us who can compete with him in the number, variety, and utility of his labors.

I might point out some of the subjects which seem to me to call for the attention of the Association at this meeting; but they are so well indicated in our Constitution, that I do not feel justified in attempting it to any great extent. There are some topics, however, which it may be proper to bring to your notice. The first of these is the importance of obtaining statistical information in regard to the preservation of health and the removal of disease. I have received a letter from the Secretary of the Smithsonian Institution at Washington, which will be read to you by

our Secretary hereafter, requesting this body to take measures for collecting information relative to prevailing diseases in different parts of the country, together with an offer of rooms belonging to the Smithsonian building for the use of the Association, if they should decide to hold one of their meetings in the city of Washington.

An application, which will be brought before you at a future time, has been also made by a foreign physician for statistics relating to one of the most important of the physiological phenomena of the human body, and of which I would recommend your consideration.

The subject of Hygiene has already attracted the attention of our body, and a Committee has been appointed to report at this session on hygienic measures. Considering that the preservation of health is far more important than the cure of disease, I would venture to express the hope, that the Association will continue its efforts in this comparatively untrodden path with unwearying assiduity.

There is another subject, formerly agitated, — and not yet settled, as I learn, to general satisfaction, — which, I think, may very properly call for further consideration. This relates to the qualifications and privileges of permanent members. Those who are

elected by the various Associations are allowed by our Constitution to continue to attend the annual meetings, without enjoying the privilege of voting after the first year, unless re-elected. It has been thought, that those who have once attended the meetings are better qualified than others to conduct the proceedings, and that therefore this privilege should be continued to them.

While I ask leave to indicate these different labors for your consideration, I would congratulate you on the amount and importance of the works which you have already accomplished. A number of valuable reports have annually enriched your proceedings.

A source of high gratification will be found in the impression which has been made relative to the adulteration of drugs and medicines. The government of the United States have been led to see the impositions on the revenue and on individuals; and the good already accomplished in the detection of this practice has been sufficient to repay the Association for all their labors.

The influence of the Association has extended itself to medical colleges, and places of medical instruction, in various parts of the country, and will, no doubt, gradually reach others. According to the recommendation of this body, the term of lectures

has been prolonged, a greater number of branches of knowledge has been introduced, a more punctual attendance has been demanded of the students, and the examinations have been made more thorough. In many places, the great importance of preliminary education has been duly appreciated, and efforts have been made to introduce preparatory examinations on classical learning and mathematical science.

The difficulties which naturally present themselves to the compliance with the last requisition have excited much opposition to it, so that many institutions have felt themselves called on to abandon the hope of establishing this part of instruction. They do not perhaps sufficiently consider, that a young man who comes to the study of medicine without a previous training is like a race-horse, who is at once brought on the turf without having been taught how to employ his physical powers to the best advantage, and that much time must be lost in systematizing the knowledge which is poured in without measure and without mercy. They do not realize that the mass of facts stored in his mind are not arranged, and, for want of medical training, never can be arranged, in such a manner as to enable him to use them for professional purposes. They do not recollect, that the intellectual faculties, like the physical, when not

skilfully disciplined at an early period, can never afterwards be so efficiently employed in acquiring the various branches of science necessary to make an eminent physician or surgeon, and to attain the respectability which they themselves think ought to be enjoyed by those who practise a profession so important to mankind.

Some complain that the other professions are often placed in advance of their own, without reflecting, that, whenever this is true, those professions possess an advantage over them in mental vigor from early intellectual cultivation. Instead of complaining, they should endeavor to elevate the character of their students by early attention to the cultivation of their mental powers; knowing, as they do, that, by a right use of these, they will be able to lay up and employ such copious stores of well-arranged facts as will give them a pre-eminence over other occupations and professions. Men naturally most respect and love those who are most useful to them; and the medical profession have, from their familiar intercourse with all classes, peculiar opportunities for making available sound knowledge and true wisdom.

To a well-regulated intellect and a well-stored memory, the student and the young physician must add the higher sentiments which spring from moral and

religious feeling. This Association has judiciously organized and put forth an excellent code of medical ethics. Whether we have yet studied this code with the care and attention it merits, may perhaps be questioned. If it has not been studied already, it will, no doubt, be hereafter ; for physicians, when they come into practice, will find that one of the strongest barriers between them and irregular, uneducated pretenders is to be found, not in prohibitory laws, but in the superior elevation of the moral sentiments. Men who pretend to exercise so responsible and exacting a profession, without a foundation of real knowledge, must be conscious of pursuing an immoral course for selfish purposes, and quail before those who are better informed, and more thoroughly imbued with a sound morality ; and, however triumphant they may appear to be for a short time, they must and do ultimately sink into the contempt their misconduct necessarily involves.

A mere moral sentiment is not a sufficient support to the character of a professor of the healing art. He is daily placed in situations and involved in responsibilities which can be known to no human mind but his own ; and, if he does not feel answerable for his conduct to a higher consciousness than that of his own heart, he may stand on ground which will

sink beneath his feet. Religious opinions and religious feelings form a highly important part of the medical character. They carry us through scenes of difficulty and danger, in a manner satisfactory to our own consciousness. They enable us to give support and consolation to patients who are suffering under mental as well as bodily distress; and they purify all our conduct by the reflection, that we must give an account of the motives of our acts, as well as of our manner of performing them. The loss of our patients' confidence, the jealousies of our professional brethren, the disappointment of our sanguine hopes, are all soothed or obliterated by higher feelings. And, finally, the confidence of every patient, whether religious or not, will be greatest in a physician who is animated by the noblest principles which the human mind is capable of entertaining.

The physicians of the last century have been often reproached with infidelity; and it is no doubt true, that the writings of Voltaire and others were read with avidity by the profession, and produced an unfavorable influence on their religious opinions. The philosophical writings of Voltaire, as they have been called, are passing into merited oblivion: they are rarely read in this country, and perhaps as rarely in England. The profession, both there and here, have

wiped off the reproach by many excellent writings, and by respecting and enforcing the highest religious principles. There are very few medical men in those cities and those parts of the country with which we are acquainted, who do not unite with some religious congregation; and a public profession of religion, formerly so rare, is now quite common among them. At the head of medical authors who have distinguished themselves as religious men in this country stands Dr. RUSH. Elevated in intellect, enriched with a vast store of knowledge, and indefatigable in practice, he availed himself of every opportunity of advancing the cause of sound morality and sincere religion. He may also be considered as the first and ablest advocate of the temperance cause in this country. In Scotland, Dr. ABERCROMBIE, during the last half-century, distinguished himself as one of the best authors and physicians. Besides his scientific writings, he produced a number of works well adapted to advance the cause of religion, benevolence, and morality. In England we may mention the names of FOTHERGILL, LETTSOM, JONES, HEY of Leeds, and many others; on the Continent, BONNET and others.

Attention to the considerations offered above will certainly elevate the medical profession, as well as the individual practitioner, in the eyes of the surrounding

community. Such an elevation has already begun to take place in this country; and instead of being, as some have apprehended, depressed by a disposition to extol quacks and quackery, our profession shines brighter whenever the comparison is made. Many of its younger members in this country have done much to raise it in the eyes of the world by their ardent and severe labors in cultivating various branches of physical science. It is delightful to notice, in almost all our large cities, bands of young physicians who are zealously and successfully prosecuting the study of the different departments of natural history, and particularly zoology, botany, geology, comparative anatomy, and palæontology. Such men are always rewarded by the public respect and regard; and, though they may not, in the first instance, acquire wealth in this way, they attain an eminence among their fellows, commanding that confidence which, first or last, will lead to wealth, whenever they choose to direct their steps in its pursuit.

Standing, as I do, on the verge of professional life, and quitting perhaps the last official station I may be called to occupy, I naturally turn back to survey the course I have passed through, with a view to discover whether there is any thing in it which

may be interesting and profitable to those who are to follow.

At the beginning of my career, medical education and medical science were in an infant state in this country. Instead of the numerous institutions which now enrich every part of it, we had one medical school in Philadelphia, another in New York, and a third still younger near Boston. A single subject was all we could obtain for our whole course of anatomy. But this seems less remarkable, if we notice, that, at the period when WILLIAM HUNTER, only a few years before, delivered the first private course on anatomy, in London in 1750, a single subject was employed for the lectures in the London Hospital, and the course of the arteries was demonstrated by a foetal preparation.

After pursuing my studies for a short time, perceiving that the advantages for medical instruction were inadequate; with little knowledge of medicine and little experience of the world, I crossed the Atlantic, and found myself in London. It was my good fortune to arrive there at the time when the genius of JOHN HUNTER had just given a new impulse to the scientific researches of the profession; and, though HUNTER was himself no more, his lectures and his writings inspired the rising faculty of the day

with the spirit of improvement. HUNTER was not, indeed, a popular teacher. His mind was too much elevated by the sublimity of his pursuits to allow him to study the language in which he was to communicate their results. He had only about twenty pupils at his lectures. Among them was Dr. GARTSHORE of London, who, it is said, regularly visited Mr. HUNTER's lecture-room, and, after taking his seat, wound up his watch, then fell asleep during the rest of the lecture. It was not so with the able men whom I had the happiness to meet. They had faithfully attended the instructions of HUNTER, and imbibed from him the disposition for research; and, among other objects, comparative anatomy, which he had pursued so enthusiastically, became their favorite study. There was, indeed, no course expressly on this subject; but it was made quite an interesting part of anatomical lectures, particularly those of Sir ASTLEY COOPER.

I was a pupil of Sir ASTLEY, then Mr. COOPER, and of his predecessor and relative, Mr. WILLIAM COOPER, who first introduced Sir ASTLEY to the career in which he afterwards made so brilliant a display. He whom I at first served as dresser, Mr. WILLIAM COOPER, — honored be his memory! — was a fine classical scholar, and a good surgeon, though not friendly

to operations. He was not particularly fond of our country, the newly formed United States, and sometimes affected to be surprised that we American pupils were so light-complexioned. Once he said, "Have you schools in America?" and again, "You have fallen off from us like unripe fruit." He soon after became tired of the post of surgeon at Guy's Hospital, and resigned it in favor of his nephew, Sir ASTLEY. The latter, full of vigor, love of science, and love of fame, moved on with rapidity in the path of improvement. He was colleague with CLINE in anatomy and surgery, gave a separate course of surgical lectures, studied and dissected in comparative anatomy. Besides hardily performing the regular operations, he introduced many new ones, and was at length graced in England by the epithet of the "Wellington of surgery." Every thing he said and did produced a double effect from his manner and its accompaniments. His voice was remarkably sweet, yet sonorous. He was one of the handsomest men of his day, perfectly self-possessed, and understood well how to avail himself of every transient circumstance to make a deep impression. At that time he was much engaged in experiments upon animals, performed with the intention of ascertaining the effect of ligatures upon arteries. He soon made known

through his lectures the important results of these experiments, and was able to demonstrate that the carotid arteries might be successively tied in a dog without fatal consequences; that in some cases, after being divided, they might safely be left even without ligature, if the animal were kept in a state of tranquillity. After a demonstration of this fact in animals, he showed that the carotid artery could be tied without danger in man.

But why should I pass over the master and colleague of COOPER, the admirable CLINE? Of all surgeons, whose operations it has been my lot to witness, Mr. CLINE had pre-eminence as an operator. Perfectly versed in anatomy, well skilled in the science of operations and surgical treatment, with an excellent judgment and imperturbable coolness, the strokes of his knife flowed on with such an easy and skilful movement, that they seemed scarcely to give pain to the patient. I once witnessed an instance of his coolness, which afforded me a practical lesson I have a hundred times thought of, when about to undertake a dangerous operation. It occurred in a case full of interesting consequences. A young sailor, falling from the yard-arm of a ship of war in the West Indies, struck his head upon the deck, produced a depression over the longitudinal sinus, became quite

insensible, and continued so for seven months, about the end of which time he was brought to England, and deposited in St. Thomas's Hospital, still in a state of unconsciousness. Mr. CLINE, notwithstanding the danger of operating over the longitudinal sinus, determined to trepan, raise the depressed bone, and give the patient a chance to recover his intellectual faculties. When the circular portion of bone was to be elevated, a death-like stillness prevailed in the amphitheatre; and, after it was elevated, and the blood gushed out as from an overflowing goblet, the stillness was broken by a simultaneous agitation in the whole assembly. Mr. CLINE, with a gentle movement, covered the aperture in the sinus with lint, placed his finger upon it, saw that the blood ceased to flow, and, raising his eyes towards the spectators with an indescribable expression of serenity, seemed to say, though he spoke not, The danger is over. In the course of that day, the patient looked about him, saw some persons he had known in the early period of his life, and ultimately recovered his former state of mind.

CLINE was among the first who brought into practice the remarkable improvement of JOHN HUNTER, in the operation for aneurism, although Sir EVERARD HOME had previously announced it, and the French

authors had attributed it to ANEL. This operation had failed of success, in consequence of the artery being diseased near the aneurismal tumor; for it was in this situation that the ligature had been placed previous to the time of HUNTER. He proposed, as you know, that the ligature should be applied at a distance from the aneurismal sac, on a point where the artery was perfectly sound. Mr. CLINE introduced this operation into St. Thomas's Hospital, with better results than those of the former mode of treatment. Still, however, as many unsuccessful cases continued to occur, Mr. CLINE thought that the small ligature cut through the artery too rapidly. Therefore, instead of a thread, he used a tape; and, this failing, he tied on the opposite sides of the artery two pieces of wood, each half an inch long. But there followed inflammation, suppuration, sloughing of the artery, and fatal secondary hemorrhage. Whence he drew conclusions unfavorable to large ligatures. The subject, thus brought before the public, was soon after taken up by a distinguished and able friend of mine, Dr. JONES of Barbadoes, whose early loss to our profession cannot be too deeply deplored. By a multitude of well-directed experiments, he succeeded in showing that a ligature must be small enough to rupture the middle

and inner coats of the artery, bring into contact and union the exposed surface of the cellular coat, and thus, with the aid of external and internal coagula, produce a firm and safe occlusion of the vessel.

Two years after Mr. CLINE's operations, and more than ten years subsequent to the suggestions of HUNTER, I saw an operation performed in Paris, in the prison of La Force, which was wholly at variance with the doctrine of HUNTER, and showed the consequences of the old practice. The patient had a large aneurism of the ham, which was operated on by M. BRUNELLE, the surgeon of La Force, in the following manner: First, a tourniquet was placed on the upper part of the thigh; second, an incision was made into the aneurismal sac, its coagula cleared out, and the upper orifice looked for, in order to apply a ligature immediately above it. But the surgeon sought in vain to discover, amidst coagula, layers of lymph, diseased membranes, and fresh-flowing blood, the object of his research. Fatigued and disappointed, he at last requested the interposition of PELLETAN, the great surgeon of the Hotel Dieu. This veteran, seizing a crooked needle armed with a ligature, passed it as well as he could around the artery and the textures connected with it above the sac, tied every thing fast, stopped the bleeding, and saved the

patient for the moment, to die soon after from secondary hemorrhage, by ulceration of the ligature through the diseased artery.

Mr. CLINE was greatly distinguished in the anatomy and pathology of hernia, a disease the management of which was at that time not so well understood as at present; so that, although the members of the French Academy, and particularly PETIT, had done much towards improving the treatment of this affection, DESAULT, in the latter part of the last century, used expressions, in regard to the operation by incision, which would lead us to believe he would only recommend it in extreme cases; and so little known was it in this country that hernia could be relieved by a surgical operation, when I began practice in the earlier part of the present century, that no such operation had ever been performed in Boston, and, I presume, not in New England; and I had the gratification of introducing this and another of the principal operations, — the ligature of the great arteries.

Mr. ABERNETHY was at that time just rising into notice in St. Bartholomew's Hospital; and, even then, he and Sir ASTLEY COOPER were beginning to be considered rivals. But, though they were in some respects rivals in private practice, they could not be

considered so in the scientific or operative parts of surgery. Mr. ABERNETHY was as much superior to Mr. COOPER in surgical pathology, as Mr. COOPER was to Mr. ABERNETHY in surgical operations. Our students in the borough rarely went to St. Bartholomew's to see the operations of Mr. ABERNETHY; and, when they did, were amused at the awkward manner in which they were performed, compared with those of Mr. COOPER and Mr. CLINE; and they had among them a saying, that Mr. ABERNETHY, in cutting his patient, was very apt to cut his own fingers.

Mr. ABERNETHY, however, had a loftier flight to pursue; for, developing the doctrines he had learned of HUNTER, he taught that operations were the great blemish of surgery, and that the highest merit of a surgeon was to prevent their necessity.* He therefore followed Mr. HUNTER in showing the importance of the principles of surgery, and developed the great

* It has been quite a fashion for surgeons to disparage surgical operations. While all agree in the opinion that operations should be avoided when possible, the operative branch of surgery must be considered as affording an exhibition of high qualities on the part of the surgeon. A profound knowledge of anatomy, a thorough acquaintance with surgical pathology, a clear conception of facts suddenly presented, genius ready to meet them, an indomitable courage, untiring perseverance, and, above all, a perfect control of the mental energies, are not qualities to be lightly esteemed. They are, in fact, — to compare small things with great, — similar to those required of the commander of an army in bloody action.

pathological doctrine of the connection between local symptoms and constitutional causes. He pointed out the way in which such causes were to be discovered, and the method by which both these and their effects were to be removed. He showed that the state of the animal system depended greatly upon food; and that, without a due regulation of the patient's regimen, it was vain to attempt a cure by medicine. At this time, there is no well-educated physician who does not believe with him, that, the whole organization being constructed of the food and every fibre penetrated by it in the secondary assimilation, it is of vastly more consequence to instruct a patient what kind of food, and how much, he should employ, than how much or what kind of medicine. I think it has been my lot to be very useful to a great many persons, by giving proper directions and restrictions as to alimentary substances; for it has appeared to me, that, most surgical diseases being more or less dependent on congestion, increased action or increased deposition, a reduction of the material which is the source of these excesses is the direct means of cutting off the cause of the disease. Hence, in the greater number of cases, my habit has been to begin my directions with dietetic rules; and a vast number of diseases have been removed by obeying these rules.

Where this obedience has failed, as it occasionally has, the patient has felt that the odium of "no cure" was to be assumed to himself, and not thrown upon his physician.

Mr. ABERNETHY, it is true, had some quackish ways. Blue pill and black draught ultimately formed a sort of nostrum with him; and patients had only to buy his book, take blue pill and black draught, to be relieved of a great variety of opposite diseases. How often have I had occasion to compassionate a poor patient, who, after having been thoroughly exercised by a course of blue pill, was ordered to be still farther scourged by the black draught! The propensity to resort to particular articles was not peculiar to Mr. ABERNETHY; since, of all the habits a medical practitioner is apt to fall into, that of identical remedies, in cases both identical and non-identical, is the most general. Such a practice saves a great deal of thinking, and is a vast accommodation to a practitioner whose rooms are thronged with patients waiting to receive their recipes.

The period alluded to was a golden age in surgery. Besides those distinguished persons I have mentioned, there were the BLIZARDS and HOME in London, Mr. HEY of Leeds, the BELLS and MUNROES in Edinburgh, and Mr. DEASE of Dublin. At the same time there

were on the Continent CALLISEN in Sweden, SCARPA in Pavia, the WENZELS in Germany, and in France DUBOIS,* SEBATIER, BOYER, and one whom we may rate above all others since HUNTER as the expositor of that anatomy which is the basis of local surgery, the anatomy of the tissues, — BICHAT. This remarkable person, though never a practical surgeon, gave an able course of operative lectures. He distinguished and described those minute textures which are the seats of the phenomena of surgical disease. He not only described their existence, but, by the most laborious experiments and exact inductions, he brought to light their modes of action in health and disease. The name of BICHAT was known and revered in this country long before his reputation had been

* DUBOIS was afterwards Baron of the Empire, member of the Legion of Honor, and a great friend of the Emperor Napoleon. The emperor employed him to officiate on the occasion of the birth of his son. When a difficulty occurred in the accouchement of the empress, DUBOIS represented to Napoleon that she would not be relieved without the application of considerable force. Napoleon immediately replied, "Treat her in the same manner you would a bourgeoise."

DUBOIS was an admirable operator ; and I found it a great advantage to pass my time, while in Paris, in his family, and in the hospital in which he officiated. His operations for the stone were performed with a rapidity so great that one could scarcely follow him in the successive steps. The knife he employed was of the size and form of an oyster-knife, cutting on both edges. He performed the operation for extraction of the cataract also with wonderful adroitness. But I remember a case in which the extraction of the lens was immediately followed by the ejection of the whole contents of the globe of the eye ; on which DUBOIS very coolly said to the patient, "Mon ami, vous avez perdu votre œil."

diffused in many of the nations of Europe.* Even in France, he does not seem to have attained the high estimation which belonged to him, till after his death had blunted the shafts of envy and hostility.

Another genius was beginning to illumine the surgery of that day. DUPUYTREN lived under the same roof with me, and in age was but little in advance. I knew him well, attended one of his first, if not his very first, course of lectures on anatomy, in connection with the able and scientific CHAUSSIER, and had an opportunity to witness the first display of those talents which ultimately placed him at the head of the surgeons of France. His lectures then were private. He held no office, and it was not till some time after that he attained the post of Chief Surgeon of the Hotel Dieu,† as the substitute and successor of PELLE-

* It gives me pleasure to state, that the great work of BICHAT on the textures was first clothed in an English dress by my colleague, the distinguished Professor HAYWARD.

† I was present at DUPUYTREN's first *concours*. It took place in the oratoire in Paris. It was a subject of astonishment to me to see a question drawn by lot from an urn, opened by the candidate, and commented upon with an ease, intelligence, and fluency, which might seem to have been the result of an express investigation and study.

Consecutively, when the *concours* for the place of Chief Surgeon of the Hotel Dieu came on, DUPUYTREN and Professor ROUX were among the candidates. In the evening after the *concours*, DUPUYTREN visited the house of a friend of his of high political importance, and, rushing into his room, struck his hands upon his head, exclaiming, "I am lost, ROUX will triumph." His friend endeavored to pacify him; inquired into the circumstances which had caused his discouragement, and discovered that his depression was produced

TAN. He lectured and operated in a very able manner, and had the credit among his admirers of having renovated a great number of the operations of surgery. Most certain it is that he altered, and adapted to his own particular notions, almost every instrument he had occasion to employ. Among his writings, one of the best, though not wholly of his own composition, is the monograph on the operation of lithotomy. It is clear, concise, full, and illustrative. It gives all that is wanted, and nothing superfluous. It has established, in my opinion, on a foundation which cannot be shaken, the superiority of the bilateral operation of lithotomy over others for safety, precision, facility, and success. To these first-rate qualities I should be glad to add that of simplicity. But in this there is a failure. He sets out to accommodate the lithotome caché of Frère COME to the double incision of the Celsian operation. But this instrument, although it was successful in his

by the apprehension that the supporters of M. ROUX were more powerful than his own. His friend then told him, "Obey me, and you shall still be victorious. Go this moment to Madame B.: her influence is all-powerful. She has a good opinion of you, and will be flattered by your application, and gratified at mixing in a court intrigue. Throw yourself at her feet, supplicate her to exercise her power in your favor, and never leave her till she has given her promise to aid you." DUPUYTREN obeyed. He visited the lady, obtained her promise, and was subsequently declared the successful candidate. This occurrence is a practical commentary on the infallible impartiality said to characterize the mode of election by *concours*.

hands, is too complicated to be exact; and, while the other parts of the operation may be subjected to precise rules, that in which this is concerned cannot. I have used it myself many times on the dead subject, and have always found that it failed to cut the extent of prostate gland it was intended and expected to cut. And this happened because its blades were so long and so slender that they yielded to the pressure of the prostatic texture, and thus diminished the extent of the incision, sometimes by one-third and sometimes by one-half. Besides, I am free to say, that I never could employ with satisfaction on the living body an instrument which was directed by a mere mechanical principle, instead of the guiding hand of the operator. Adopting the operation of CELSUS, as proposed by DUPUYTREN, I substituted for his lithotome caché a probe-pointed knife, the edge of which was directed first to the left, then to the right, and always guided as to the direction and extent of the incision by the forefinger of the other hand. By a precise attention to anatomy, this instrument may accomplish an exact division of the prostate: at least it has been so in the bilateral operations I have practised, which have been done with great facility, and followed with perfect success. This operation has been extensively adopted in this

country, and among others by my friend, Professor R. D. MUSSEY, of Cincinnati, who has performed it a considerable number of times, and prefers it to any other mode.

The able and distinguished Dr. STEVENS, last President of this Association, invented a very safe and effectual instrument for making the double incision, which I had the pleasure to convey in the year 1837 to the celebrated Professor ROUX, surgeon of the Hotel Dieu. He expressed his gratification with the principle on which it was constructed, but added with a somewhat melancholy air, "There will be no more lithotomy. Lithotripsy has assumed her function, and no surgeon hereafter will attain sufficient experience to reach the highest degree of adroitness in lithotomy."

M. ROUX, now the veteran of French surgeons, still able and active, operates with the knife, the gorget, or any other instrument, with perfect facility. When I was present, having occasion to perform the operation of lithotomy, he turned towards me, and said to the class, "Gentlemen, this is an American surgeon, and a fellow-student of mine. I shall perform this operation in the way he indicates." Not having seen the gorget used for a long time, I invited him to employ this instrument. The patient was

placed on the table, the operation skilfully performed, and the stone extracted with great ease. Professor ROUX has written many able works. He is particularly well acquainted with English and German surgery, and makes trial, without prejudice, of every reasonable proposal for improvement, from whatever quarter it comes.

Professor VELPEAU holds a very high rank among the cultivators of surgical science. Perhaps there is no surgeon living who is more indefatigable, and has written and lectured so much and so well. His historical sketches of surgical operations, and appreciations of their comparative merit, are impartial, judicious, and instructive. Professor VELPEAU, more than any other surgeon, has, I think, understood and displayed the progress of surgery on this side of the Atlantic.

In keeping up the chain of connection of surgical history to the present time in Europe, I should mention the names of DIEFFENBACH in Berlin; STROMEYER in Vienna; CHELIUS of Heidelberg; WALTHER of Munich; LEUTIN of Brussels; BUCCI of Rome; MAUNOIR of Geneva; QUADRI of Naples; BRODIE, distinguished as a man of genius, an author, and a practitioner; LAWRENCE, as an eloquent lecturer, skilful operator, and a person of high scientific ac-

quirements; TRAVERS, STANLEY, LISTON, and FERGUSON, in London; SYME in Edinburgh; CLOQUET, BLANDIN, BERARD, in Paris; BONNET in Lyons; and many more.

In our own country, PHYSICK was the disciple and representative of the doctrines of HUNTER. In practical surgery, as well as in public instruction, he indeed might excel his master; but, unhappily, he failed to transmit to posterity the result of his vast experience and keen observation, except to a limited extent, and by the hands of others. Through his lectures, however, he diffused improvements calculated to advance scientific and practical surgery, not only in this country, but throughout the world. Time would fail me to mention other American worthies, now no more, who have passed over the stage in my day; and I can barely repeat the names of POST, HOSACK, of New York,* SMITH of New Haven, SIMMONS of Charleston, DORSEY and RANDOLPH of Philadelphia, and that of my immediate predecessor † in the department of surgery. If I omit the names

* Although not within the scope of my present plan, I cannot forbear to mention a name so distinguished in the annals of American surgery as that of Dr. MOTT, professor of surgery in New York.

† Dr. JOHN WARREN, first professor of anatomy and surgery in Harvard University at Cambridge, generally considered to have been one of the most eloquent lecturers on anatomy, and for many years a distinguished surgeon in Boston.

of many others of my own countrymen, I would not have the omission attributed to a want of due estimation of their talents and their labors, but to the difficulty of selecting those who have been more known to fame than the rest.

I shall conclude this brief sketch by adverting to some of the principal improvements in our science in the later years of the past half-century, — the microscope, lithotrity, tenotomy, cold water, and ether.

THE MICROSCOPE. — The first improvement to be noticed is in the restoration of the microscope. This instrument was successfully employed by MALPIGHI, LEUWENHOEK, SWAMMERDAM, LIEBERKUHN, and others ; but afterwards fell into neglect. About the middle period of the present half-century, its structure was improved by the introduction of achromatic lenses ; and its use revived with such striking results as led to its extensive application in Germany, France, and England. Not only has it revealed a great number of objects in anatomy and physiology, but it has thrown light on the very obscure distinctions between healthy and morbid growths. It has gone even farther ; and, penetrating to the origin of organized bodies, it has surprised nature in the very

act of primary production. By its means, the "cell theory" has been in a great measure established, and the forms shown which nature employs to originate, build up, and repair organic textures in the vegetable and animal kingdoms. The microscope must, however, be employed with due precaution. When the object is exposed to a very high refracting power, some microscopists describe appearances essentially modified by their peculiar views. It has frequently occurred in my experience, that different forms have been presented to the imagination of different observers; and that, among persons equally experienced in the use of this instrument, some have pronounced the part under investigation to exhibit morbid growths, while others have seen nothing remarkable.

LITHOTRITY. — The second improvement I shall mention is lithotritry. The operation for the stone has excited great attention from the earliest ages of historical surgery; but it remained for the last century to give to it those perfections which have rendered it safe and successful. The staff of FRÈRE JACQUES, the gorget of HAWKINS, the knife of CHESelden and RAU, contributed to give security to the deep and critical incisions of this operation; and when we add to these, in the last half-century, the bilateral method,

and crown the whole with ether, we have an operation, once most formidable to the surgeon and the patient, converted into an easy and painless dissection. But, "alas!" says M. ROUX, "there will be no more lithotomists." The volumes which have been written, the instruments invented, and the laborious dissections undertaken, to perfect this operation, are now comparatively useless.

The extraction of foreign bodies from the bladder through the urethra had been frequently practised in former times. MR. HUNTER invented an excellent forceps for penetrating the deepest part of the urethra. SIR ASTLEY COOPER, before the introduction of lithotrity, contrived a forceps in the form of a catheter, which he employed to operate on a friend and fellow-student of mine, DR. WILLIAM ROOTS, a distinguished physician of Kingston upon Thames, in England. This operation was performed forty years since, and the patient still enjoys life.

CIVIALE, LEROI, and HEURTELOUP are to be considered as the founders of lithotrity. The first essays were any thing but encouraging; and I confess, when I saw the *brise-pierre*, the hammers, the drills, the wire bags, and the great variety of complicated contrivances for this operation, I was filled with doubt and apprehension as to the ultimate fate of the new

invention. The first operation of lithotrity in this country was performed by our most distinguished surgeon with a fatal result ; but this was soon followed by the great success of his relative, now unhappily no more, the late Dr. RANDOLPH. The first which I had an opportunity of witnessing was in Europe, in 1837. There was a great deal of ceremony about it. The patient was fastened to a very large chair or bed, a great many instruments were employed, and a number of aids were thought necessary. How different is it since ! We have performed this operation without an attendant, and sometimes without any preliminary arrangements.

Still we had to combat the distress and disadvantage inseparable from the movements of an instrument in the sensitive bladder. It occurred to me to apply ether, soon after its introduction, to relieve these sufferings ; and the effect was wonderful indeed. The operation of lithotrity can now be performed almost with a certainty of success, with little danger and without suffering. I would say here, that I have repeatedly seen M. CIVIALE, before ether was used, crush a stone in the bladder without exciting any expression of pain. His skilful and kind manner carried a patient through the operation before he was aware it had begun. To this

excellent lithotritist we are also indebted for works containing a vast number of practical details on the subject of this and other urinary diseases.

It has never been my lot, so far as I know, to fail of ultimate success in an operation of this kind, and never to have seen any dangerous symptoms consequent thereon. The existence of urinary calculus is, however, very rare in Boston. All the operations for the disease within seventy years have been performed by my father, my son, and myself; and they do not exceed fifty.* Of these, only two have succumbed from lithotomy, and none from lithotrity.

To me it has been a matter of much interest to determine the cause of the extreme rareness of this complaint in Boston, compared with other parts of the country. Of the fifty cases operated on, as above mentioned, not more than half originated in Boston. But then it must be understood, that there have been a few cases of small calculi not operated on; and there may possibly have been patients lithotrizied, without my knowing it. Now, Boston and its vicinity, considered with a view to calculous diseases, is peculiar for the absence of calcareous matter in the soil. The

* About two years since, in a statement I had occasion to make on this subject, the number of operations was mentioned to be about forty. Of course, the additional number has occurred since in the practice of lithotrity.

country about the great western rivers is remarkable for the frequency of urinary calculus. Its waters, in many localities, are impregnated to a greater or less degree with calcareous particles. But how far do these facts go to explain the frequency of calculi there?

Some time since, I was informed by a medical friend practising on the great rivers of the West, that the calculi found in the limestone regions of these waters do not contain a greater proportion of calcareous substance than those of regions containing little calcareous matter. And Dr. MARCET, in his work on Calculous Diseases, p. 30, says, that in the Norwich Infirmary, in England, situated in a district where stone is more prevalent than in any other county in England, and "where the soil is charged with chalky matter, the proportion of calculi containing lime is smaller" than in London. But it appears by the investigations of Professor PETER,* that there is a

* In the "Western Lancet," vol. v. No. 4, Prof. PETER of Lexington, Ken. published a very valuable paper, which has done much to illustrate this subject. In a letter which he had the kindness to address to me lately, he says that, in addition to the numerous analyses contained in that paper, he has made a number of others, and finds that the general conclusions arrived at, in the seventy-eight examinations there described, have been strengthened, viz. that calculous disease is much more frequent in limestone districts than in freestone or primitive regions, where the water is more pure; and that, while the *uric acid* calculus predominates in the latter localities, the urate of ammonia or oxalate of lime *nucleus*, and the *oxalate of lime* body, with some

greater proportion of the salts of lime in the vesical stones of these localities than in those of other places. Questions on this subject I do not pretend to answer, but must leave them to the ingenuity and experience of my friends in the western parts of the country. The Ohio State Medical Society, in February, 1850, issued a circular containing several questions, on which answers were desired to be furnished in the month of June; so that we may hope to receive a valuable addition to our information in regard to the local causes of calculous complaints.

TENOTOMY. — We are chiefly indebted to HUNTER,* DELPECH, STROMEYER, DUPUYTREN, GUERIN, BOUVIER, and LITTLE, for the introduction of tenotomy. It had been long known, that in wounds of cavities, when

increase in the frequency of the phosphatic deposits, characterize the urinary concretions of the limestone countries.

It appears, then, from the analysis of Professor PETER, above mentioned, that calcareous matter does exist in the calculi of limestone regions, in a greater proportion of instances than elsewhere; and this fact explains, to some extent, the unfrequency of calculi in Boston, and New England generally, because limestone is comparatively rare. Further, the statement of Professor PETER, that uric acid calculi predominate in freestone or primitive regions, is correct, as a large portion of our calculi contain more or less of uric acid.

* HUNTER ruptured the tendo Achillis by rising suddenly, and extending his feet, after sitting long at dissection. This accident, no doubt, led him to divide the tendons of animals by a subcutaneous incision, in order to ascertain whether they would unite; but there is no reason to believe, that he introduced this operation in the human subject.

air was admitted, dangerous inflammation was apt to follow. Mr. HUNTER originated the idea, that the irritation produced in a wounded cavity was attributable, not to air, but to the interruption of the surface by a wound, which he called the stimulus of imperfection. M. JULES GUERIN, in Paris, has shown that the admission of air to a wound in the cellular, muscular, and other textures, causes decomposition of the blood and various changes, which produce a morbid influence, first on the surrounding parts, then on the whole system. The fact, that, in simple fractures and dislocations, the inflammatory action is very mild, compared with dislocations and fractures accompanied by external wounds, might have earlier pointed out the vast advantage gained by the exclusion of air. Air is necessary to respiration, growth, and purification ; but its oxygenous portion is stimulating, and therefore considered unfavorable to wounds in a state of inflammation. It is consequently thought necessary to give some artificial protection to an open wound ; and this protection has usually consisted of ointments, plasters, &c. The cure which nature accomplishes under the cover of these plasters has been attributed to their peculiar virtues. Hence it was, that formerly names were given to them expressive of great powers, such as Basilicon, king of

ointments; *Tetrapharmacon*, *Balsamum archæi*, &c. Of late years, however, we have endeavored to get rid of these ointments, when practicable, because they are dirty, unhealthy, and, of course, retard the curative process. Instead of them, we use any mild and unirritating substance, such as a soft cloth dipped in warm or cold water, or fine flour, or the powder of flax-seed, slippery elm, Peruvian bark, or charcoal. These accomplish the real object of most dressings, — that of excluding the access of atmospheric air.* This view of the subject shows us, that tenotomy has been useful, not only in remedying deformities, but in illustrating and enforcing a general principle of great utility in surgical practice.

The excessive use of tenotomy for remedying deformities has brought it into a certain degree of discredit. After the first ardor in the pursuit of this operation had cooled a little, we began to realize more distinctly the important consideration, that distortions cannot be cured without posture, and a proper apparatus to secure this posture. But every day's experience shows, that deformities may be cured by posture without operations. Posture is of vast importance

* After all, there are many cases of wounds which are better cured without any application. I have often directed wounds of the face to remain exposed, particularly where there has been apprehension of *crisipelas*. These have recovered rapidly, and escaped *crisipelas*.

in many other cases, as in the treatment of fractures, whether the limb be placed on its side or on its back, whether it be in a straight or flexed position. So it is no less important in ulcers, in diseases of joints, in diseases of the back, and in varicose veins; in the prevention of bed sores; in various diseases of the head, heart, lungs, and abdominal viscera. Retention of the same posture too long is the source of serious diseases. I saw at the same time, in the same room, two brothers, one of them operated on for ligature of the subclavian artery, the other for strangulated hernia; both affected with insidious congestive inflammation of the lungs, brought on by long and absolute confinement on the back, and which had nearly proved fatal before it was discovered, and could only have been discovered by percussion and auscultation of the back. These cases show the great importance of posture, and of change of posture; and I will mention another case to prove the necessity of changing the posture very cautiously, after it has been long continued. A lady had an artificial anus from strangulated hernia. She was, under the process of cure, nearly well, but was necessarily kept in the horizontal posture on her back. After remaining six weeks without once rising, having awoke in the night with a desire for some nourishment, she

thoughtlessly arose suddenly in bed to drink a cup of cocoa. At the instant, she was seized with deadly faintness, the circulation stopped, and in a moment she was a corpse. The body was examined, and the brain found anæmatous, without any other visible cause of death. The sudden elevation of the head prevented the blood from reaching the brain, and giving the stimulus necessary to continue its functions, and those dependent on it. I could say, if time allowed, much more on the subject of posture as a means of relief in a great variety of accidents, diseases, and operations.

COLD WATER. — The introduction of cold water into the practice of surgery is one of the great ameliorations of the present day. In the early part of my practice, cold water was not allowed to touch a wound, a fracture, or an inflamed part. But lately it has become fashionable, and the practice has run the other way, with an impetuosity which is not wonderful, considering the propensity in our profession to the extreme use of any new method brought to their notice under favorable circumstances. In the course of my time, I have seen a great variety of fashions in surgery and in medicine. A large part of these have passed out of my recollection.

But I do remember, that at one time mercury was employed in most diseases, not only general, but local; inflammations and fevers, affections acute and chronic, syphilitic and scrofulous. In short, nearly all diseases, all ages, both sexes, were invaded by this potent mineral. A medical man would not have dared to go into consultation with the statement, that his patient had taken no calomel in a case of typhoid fever. And now it has been shown by the distinguished and accurate LOUIS and others, that patients may get well of fever, not only without mercury, but without medicine; and that the more simple their treatment, the more likely they are to recover. In other complaints also, it is now used in a very limited manner. We are therefore fairly exonerated from the responsibility, not to say culpability, of employing an article in febrile cases, whose value in them is most uncertain, and which may bring on the most horrid and irremediable consequences. Let me not be understood to say, that medical advice is unnecessary in this disease. On the contrary, patients with fever require to be guided at every step and turn to prevent the running into dangers; against which, indeed, nature would warn, but into which the folly of friends would perpetually urge them. — What vast difference is there in the practice of abstracting blood

at the present time, from that which prevailed thirty years ago!

How many articles I might mention, the use of which has been carried to excess by a blind enthusiasm! We remember digitalis, phytolacca, bismuth, prussic acid, preparations of iodine; and, finally, shall I say it? we now have the cod-liver oil practice.* But here I must pause; for I would not venture to oppose myself to the current which threatens to sweep over the whole country. My conclusion on this topic is, that a judicious practitioner should not allow himself to be drawn away by every new remedy; that he should carefully watch its effects, recollect that the specific power of medicine is limited, and that a thousand medicines are good, each in its place, but that there is none which can be applicable to every disease.

We must now return to the subject of cold water. For many years, I have myself employed it with great advantage in inflammations external and internal. Externally it has a better effect than any other remedy, except the abstraction of blood. It may be employed in two or three different ways. First, as

* The use of cod-liver oil in phthisis has been judiciously explained by the distinguished French physician, BUREAUD RIOFREY, lately established as a medical practitioner in the city of New York.

an evaporant. One or two layers of cloth dipped in cold water, and laid on the inflamed part, produce rapid abstraction of heat by evaporation, and thus diminish the phenomena of inflammation. Second, by douche; that is, by an affusion of cold water in a small or large stream. This, again, is a powerful mode of diminishing the temperature of a part.* Third, water may be used as a cataplasm. For this purpose, six or eight layers of cloth are made to imbibe it. These should be laid on the inflamed part, and covered by an impervious cloth. Internally, cold water may be employed for most inflammations, especially inflammation of the throat, fauces, stomach, intestines large and small, by draught and by injection. In typhoid fever, for example, it will probably be more beneficial after the first evacuation than any other remedy, and may, I apprehend, be used during a considerable part of the complaint, as a substitute for all others.†

* I will mention here two affections in which I have found the douche beneficial: one is a very fine continuous stream of cold water, thrown in between the eyelids in ophthalmia. Another is the application of a continuous stream of cold water to the anus and perineum in acute and chronic inflammation of the prostate. In the latter, — that is, chronic inflammation and enlargement, — I have found it the most useful of all remedies.

† Bruce the traveller states, that in some bad fevers, on the borders of the Red Sea, an important part of the treatment consisted in a very free internal use of cold water, and frequent affusion externally. His words are: “If the patient survives till the fifth day, he very often recovers by drinking

The above is a brief account of some of the modes in which my experience justifies me in recommending the use of cold water for inflammation. As a tonic, its importance is well known to our profession. I have used it extensively, both generally and locally, with great satisfaction. I would not, however, be thought to sanction the practice of many hydropathic establishments, carried on by empirics, ignorant of the first principles of medical science. These, though they may sometimes do good, very often do harm, and will certainly pass away with the medical fashions of the time. I cannot conclude this topic without expressing my regret, that a practice so valuable for health, for cleanliness, for comfort, and for the cure of disease, should have become affiliated in an extraordinary manner with one of the most remarkable medical fictions that has been produced by the present or any former age.

ETHER. — Last, though not least, in the march of improvement, comes the application of ether for the prevention of pain. The sufferings of patients in

water only, and throwing a quantity of cold water upon him, even in his bed, where he is permitted to lie, without attempting to make him dry, or change his bed, till another deluge adds to the first. . . . Small doses of bark must be frequently repeated, and perfect abstinence observed, unless from copious draughts of cold water." — *Bruce's Travels*, vol. iii. pp. 360, 361. *Dublin edition*, 1791.

operations have long engaged the attention of surgeons, and led them to make efforts for their mitigation. Opium and other narcotics, compression and division of nerves, the electric fluid and the influence of the imagination, have been employed for the accomplishment of this object. For many years, I was in the habit of using doses of opium, which, under other circumstances, I should hardly consider to be safe; as, for example, from six to twelve grains. But even these doses produced only a partial diminution of pain. When, in the autumn of 1846, I was requested to try an article, the nature of which was kept secret, for the attainment of the great object above mentioned, I readily undertook the responsibility of such a trial, though with very slight hopes of any beneficial result. After the trial, it being obvious and it having been admitted that the unknown article was sulphuric ether, my confidence was greatly increased, on the ground that ether and its preparations had been long employed as an anodyne in medical practice; and, further, because I had occasionally used it in the way of inhalation for relieving the sufferings of the last hours of life. My colleagues in the Hospital,* seeing the effect of the

* Dr. GEORGE HAYWARD, Dr. S. D. TOWNSEND, Dr. J. M. WARREN, Dr. S. PARKMAN, Dr. H. J. BIGELOW. And I cannot omit to mention, that

new anodyne and experiencing it in their own practice, readily adopted and recommended it. Some opposition naturally arose to the frequent use of an agent which possessed such a wonderful and mysterious power over the nervous system. But the frequent repetition of the experiments, which a uniform success fully justified, soon overcame all scruples in the city where the practice originated.

The first surgical operation in which ether was used for the prevention of pain was performed by me in the Massachusetts General Hospital, in the month of October, 1846. Since that time, the number of administrations has, it appears, exceeded fifteen hundred; and it is certainly remarkable, that, in so many cases, not only has there been no fatal termination, but nothing of a permanently unfavorable nature has been discovered to have followed its use. That this immunity has arisen from any peculiar mode of application I would not pretend to say. The only peculiarity I have been able to detect has been brought to my notice by the remarks of distinguished surgeons from other cities and countries, from whom it has appeared that we employed ether much more

among those who were earliest to sanction and adopt the use of ether, were my friend and colleague, Dr. JAMES JACKSON, formerly physician to the Hospital; Professor J. BIGELOW, now physician; and Dr. A. L. PIERSON, formerly consulting surgeon in the same institution.

freely than is common in other places. It is very well known, however, that the same success has attended this practice elsewhere; and that, among the hundreds of thousands of cases in which ether has been employed, — marvellous to relate! — not an instance of immediate death has yet occurred; I mean, death within two or three minutes of the application. That such will continue to be the result, I would not venture to predict. On the contrary, I am in constant apprehension of some serious occurrence; and I would therefore venture to give a solemn warning to all surgeons who may have occasion to use ether, not to omit any possible attention calculated to prevent a mischievous or dangerous accident. Our mode of application for the Hospital is very simple. First, The patient is not allowed to eat freely within three or four hours before an operation. Second, He is placed, if possible, in the horizontal posture. Third, If the operation is to be bloodless, the patient should be bled from the arm before it begins. Fourth, The pulse, respiration, and countenance should be carefully watched by an assistant, whose special duty it is to perform this office. Fifth, A large sponge, of a conical form, is filled with ether, and applied over the nostrils of the patient, but not in such a way as to prevent him from getting a quantity of atmospheric

air into the lungs. Sixth, The application should not be too severely pressed upon the patient; and, if he coughs or exhibits symptoms of distress, the sponge should be raised for a moment, and then re-applied. Seventh, A perfect relaxation of the muscles is the test of full etherization, such as is required in every important surgical operation. Eighth, We generally continue the ether, with slight intermissions, till the operation is terminated, unless there is some reason for the contrary practice. Ninth, We avoid approaching the patient, during the administration of ether, with a light, the actual cautery, or any thing capable of setting fire to the vaporized ether. I have known two instances of alarming combustion from the want of this attention. Ether is inflammable; chloroform is not so.

When alarming symptoms occur during etherization, the process is suspended of course. If the pulse, &c. fail, we must resort to the application of cold water to the face, stimulation of the nostrils with ammonia, the pouring of ammonia and water into the stomach, extended and rapid frictions and heat externally, and also to artificial respiration. These applications are, however, so rarely necessary that I am unable to recollect the time when even the most simple of them was indispensable.

In a published account of an anniversary meeting of the French Academy of Sciences, a distinguished surgeon is stated to have said that ether in surgical operations was objectionable, in consequence of the involuntary agitation of the patient during its influence. We have, indeed, known inconvenience to arise from the agitation of a patient when partially etherized. But, when perfectly affected by this narcotic agent, there is a delightful state of repose which protects him from the agonies of the knife, and allows the operator to pass tranquilly through the most delicate dissections. If there be in operative surgery any truth which experience enables us to maintain in an unqualified manner, it is that the surgical application of ether is one of the greatest acquisitions, provided it be properly administered; and that, when applied in a parsimonious or injudicious manner, instead of a blessing it becomes a curse.

A great deal has been said, and much more might be said, on the physiological cause of the suspension of sensibility under the use of ether. On this subject I will only remark, that, in the state of narcotism produced by ether, I have noticed that arterial blood assumes, more or less, a venous or dark color; and that the change in color has generally corresponded to the degree of narcotism. The loss of sensibility,

therefore, arises probably from the absence of oxygen in the blood; and the phenomena of etherization are dependent on the same cause as those of suffocation,—the absence of oxygen.

Chloroform, which had been long known to chemists, was used to produce insensibility, about a year after ether had been employed for this purpose. The great power of this agent, the suddenness of its action, the smallness of the quantity required, and the absence of any disagreeable odor, gave it a rapid and extensive popularity, so that ether was for a time abandoned, and almost forgotten. The first experiment which I made with it was on my own person, in a large party of gentlemen of science. The article being administered among us for the first time, I was led to inhale it, because others did not seem inclined to make themselves the subjects of experiment. The inhalation was accompanied by a burning sensation in the lungs, which, however, I bore till a partial insensibility was produced. The chloroform being removed by the gentleman who applied it, I did not repeat the application at that moment, on account of the very unpleasant effect on the lungs, which continued through the evening, and a part of the following day. Presuming, however, that

there was an idiosyncrasy, I proceeded to employ it generally as a substitute for ether, and used various instruments for more convenient and exact administration; some of them contrived by myself, but the greater part by others.

At this period also, I took part in the introduction of Dr. SIMPSON's pamphlet on chloroform, appended a letter in its favor, and distributed a large number of copies.* For some time, no objection occurred to its employment, except an occasional production of heat and soreness in the lungs, and irritation of the face. My colleagues in the Hospital also used it; and I suppose we should all have continued to do so up to the present time, had we not been occasionally alarmed by some startling occurrences, and finally by the news of fatal results which reached us from different quarters at about the same period. A sudden death from chloroform occurred in this country in Cincinnati, another in New York. Soon after, we

* The distinguished Mr. LAWRENCE, of London, made use of chloric ether as an anæsthetic, before chloroform had been used by Dr. SIMPSON, as I have already mentioned in the paper on the dangers of chloroform, published in 1849. But whether he employed the chloric ether of commerce, strong chloric ether, or even chloroform, I am unable to determine. Whichever of these he administered at that time, he certainly afterwards used chloroform, and probably does now; for, when I sent to him the above-named paper on the dangers of chloroform, he informed me that this substance had been, and was then, very extensively employed in St. Bartholomew's Hospital and throughout England.

heard of two or three in England and Scotland; and, subsequently, of some others on the Continent of Europe. These fatal events awakened the inquiry, whether we had not too hastily abandoned the use of ether. We noticed, however, that, although a number of fatal cases had occurred from the use of chloroform, a great many individuals had employed it without any bad effects; and, as everybody else had adopted chloroform, we continued to use it, though not without hesitation and diminished confidence.

The number of deaths increasing, we had various private and public discussions, which gradually led to the disuse of chloroform, and the employment of the ethers. In many parts of this country, in Great Britain, and on the Continent of Europe, a return to ether has taken place, and the number of its friends is increasing. In this state of matters, controversies have arisen, and produced a thorough investigation of the comparative advantages of each of these articles. The Paris Academy of Medicine has distinguished itself by the freedom, the extent, and acuteness of its discussions on the advantages and dangers of chloroform. To us it appears, that they have established the following facts in regard to chloroform: First, that it acts more suddenly, more violently, and for a longer period of time, than ether; that its odor is

less objectionable, while its contact with the skin is more irritating. It follows, of course, that sulphuric ether is less rapid in its effect than chloroform, less violent, and less permanent; that its odor is less agreeable, and its contact with the skin less irritating. A superficial view of this comparison would lead to the conclusion, that the new narcotic was preferable to the old. But, when we come to inquire which is the safest, facts reply that the advantage is entirely on the side of ether; for there is no well-authenticated statement that we know of proving unquestionably that ether has ever killed any person downright, that is, caused immediate death. I say immediate, because death has been imputed to both chloroform and ether at variable periods, admitting the intervention of other agents, and, of course, rendering it very uncertain whether the result should be attributed to the narcotic or something else. But there is abundant evidence, that immediate death has occurred under the use of chloroform in a number of instances. The advocates of this agent, however, maintain that these deaths, apparently from chloroform, arise from other causes, such as syncope, fear, and the passage of air into the pulmonary textures. If such explanation of death by chloroform be the true one, it must nevertheless be admitted, that these

accidents, as they have been called, arise under its administration more frequently than under that of ether. And it must follow, that ether should be judged a more safe narcotic than chloroform; and that it ought to be preferred, unless some decided objections can be opposed to it. The most material objection would be its inadequacy to the production of perfect insensibility. But this is not sustained by facts; for ether is capable of producing a state of perfect insensibility.

It may be objected further, that ether does not accomplish its object so speedily; but, if it does it in a reasonable time, the slight prolongation required cannot be considered as constituting an objection sufficient to balance the danger of death by chloroform.

From this view it appears to us very clearly, that we are not justified in using the more powerful but dangerous article, rather than the less violent but safer; and we should therefore advise the general disuse of chloroform. Cases may occur in which ether does not produce narcotism in a reasonable time. In such cases it would be proper to resort to the more powerful and anæsthetic agent. They must, however, be very rare, since we have seen only a single instance where it was thought

necessary to adopt this course ; and in this it happened, that chloroform actually failed after ether had been used, and that, on the re-application of ether, the desired narcotism was obtained.*

Again, it may be alleged that sulphuric ether is objectionable, on account of its disagreeable odor, its tendency to produce cough, to cause headache, and its persistent dead smell. These objections may, to a certain extent, be obviated by the use of strong chloric ether,† which possesses all the advantages of sulphuric ether, and has none of the disadvantages of chloroform. I was led to employ this article, on hearing of the fatal cases of chloroform in the early part of the year 1848, and have continued to use it to the present time with perfectly satisfactory results. It is more agreeable than sulphuric ether, does not require a longer time, causes no headache in the by-standers, and its effects pass off, as I think, more rapidly than those of sulphuric ether. This last

* Chloroform may be used externally as an anodyne liniment. During the last two years, I have employed it very frequently in this way, and sometimes with favorable results. In order to produce its narcotic influence by external application, it should be applied extensively and freely in the way of friction. A degree of cutaneous irritation is produced by it, which, in most cases, might aid in relieving a local pain.

† Mr. LITTLE prepares strong chloric ether in the following manner: "Take the first run (that is, what passes first in distillation) when distilling chloroform, and re-distil from water containing an excess of lime ; which gives a perfectly pure 'chloric ether,' free from chlorine, or any other impurity."

quality I am disposed to attribute to its causing a nausea, and sometimes vomiting, which remove the state of narcotism in the same manner as they do when the latter is brought on by alcoholic drinks. Its administration requires no other precautions than does that of sulphuric ether, with the exception that the face should be protected from its irritation by previously anointing the skin.

An objection has been made to the use of chloric ether on the ground that it is nothing more than weak chloroform, and that, therefore, it may sometimes produce the dangerous results so frequently occurring from the latter. To this it might be replied, that, such results not having yet presented themselves in the great number of cases which two years of experience throughout most parts of this country have afforded, there is no good reason to believe that they will hereafter occur. If, however, contrary to present appearances, any such dangers might seem to follow, it will then be the time to examine into their reality, and, if necessary, to abandon its use. The mixture of alcohol with chloroform must certainly, by diluting, lessen its violence. Dr. MASON WARREN and myself have employed it in more than three hundred cases, and continue to employ it in preference to sulphuric ether or chloro-

form. Dr. PEIRSON, of Salem, one of the earliest advocates of sulphuric ether, has adopted it in an extensive surgical practice. The distinguished Professor WATSON, of New York, and other gentlemen of the first character in every part of the United States, have informed me that they used it in preference to other articles ; and I believe that those who may obtain it, carefully prepared in the way I have indicated, will substitute it generally for sulphuric ether.

The agony of death is a fair subject for the influence of ether. This supposed agony, in perhaps the greater number of cases, is a creature of the imagination, conjured up by fear. Nature, like a kind mother, has presented the phenomena of death with such accompaniments as she thinks necessary to deter us from resorting to it by our own act. But, while the entrance to the dark passage appears frightful, as we pass on it becomes less so, till it terminates gently in insensibility. Some instances there are, in which there is real suffering. In these an invaluable friend is found in ether. And when the mortal strife is so far advanced as to leave neither hope nor chance of recovery, the duty of a physician is to interpose the means by which we may be quietly conducted through the final moment. This practice

I adopted many years before ether was introduced into surgery; and I have followed it lately, though with great caution, and never without the clear knowledge and full assent of the patient and his friends.

The transient review we have taken of the progress of surgery, during the last half-century, appears very gratifying. Improvements of a high order have shown themselves within this period, some of which are scarcely less important than the discovery of the circulation and of vaccination in the two preceding centuries. This is the more observable from the fact, that the period of brilliant discovery has not generally been one of ordinary improvement; while, in the last half-century, the great advances we have noticed have coincided with others in almost every department of surgery. This has arisen from the disposition to investigate and look into principles, instead of following a blind routine. Consider, for example, how much more rational and successful is the treatment of simple wounds, of fractures, of dislocations, of wounds of arteries, of syphilis, of diseases of the eye.

When we add to these the wonderful progress in the application of physical science to practical pur-

poses, and the consequent improvements in the transmission and diffusion of knowledge, the great discoveries in natural history, the revolution in geology and palæontology, the popularization of learning by lectures, the temperance reform in so great a measure attributable to the medical profession,* with the consequent amelioration in the morals of one part of the community, and of the health and happiness of the whole, we have great reason to thank the Author of all good that we are allowed to live in such favored times. But we should not permit these reflections, as we are very apt to do, to puff us up with a foolish pride in our State, our country, or the age in which we live. We should rather look about us, and see how little we have done ourselves, how much remains to be done, and what are the particular demands on our future efforts. We ought also to remember, while we are congratulating ourselves on the recent advances in knowledge, that there is a vast mass of riches on the shelves of our libraries,

* It is gratifying, that, among the early and steady supporters of temperance in this part of the country, we may venture to name the able and distinguished Chairman of the Committee of Arrangements, — Prof. DRAKE; and Prof. MUSSEY, who, since the delivery of this Address, has been elected President of our Association. Honorable is it also to the Association, and to the city of Cincinnati, that the public festival was celebrated without the introduction of alcoholic liquors; and that the same may be said of the private hospitalities of the citizens, so far as I had an opportunity of noticing.

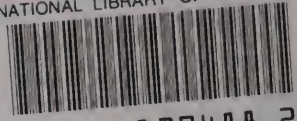
which, though buried in the novelties of the present time, is capable of furnishing learning not less valuable than that for the possession of which we are so highly applauding ourselves.

This great Association, representing every part of the country, has the power of influencing the cultivation of these desirable objects; and I will now take my leave of it with the most fervent aspirations, that it may long continue to promulgate doctrines which will aid the progress of science and civilization; further the means of relief for the sick and the suffering, and elevate, as far as possible, the art of healing to the rank of a fixed and positive science; so that, when another half-century shall have rolled away, and another generation shall convene in this city, they may be willing to pay the same tribute of respect to the members of this Association that we so gladly accord to the distinguished men of the past.





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